

Title	Introduction. Politics of Big Data
Type	Article
URL	https://ualresearchonline.arts.ac.uk/id/eprint/10686/
Date	2016
Citation	Coté, Mark and Gerbaudo, Paolo and Pybus, Jennifer (2016) Introduction. Politics of Big Data. Digital Culture and Society, 2 (2). pp. 5-18. ISSN 2364-2122
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Introduction

Politics of Big Data

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This special issue offers a critical dialogue around the myriad political dimensions of Big Data. We begin by recognising that the technological objects of Big Data are unprecedented in the speed, scope and scale of their computation and knowledge production. This critical dialogue is grounded in an equal recognition of continuities around Big Data's social, cultural, and political economic dimensions. Big Data, then, is political in the same way in which identity, the body, gender, sexuality, race and ethnicity are political, that is, as sites of struggle over meaning, interpretations, and categorisations of lived experience. Big Data is political in the way circuits of production, distribution, and consumption are political; that is, as sites where access, control and agency are unequally distributed through asymmetrical power relations, including relations of data production. Big Data is political in the way contemporary politics are being reshaped by data analysis in electoral campaign strategy, and through state surveillance as strikingly evidenced by the Snowden revelations on the NSA and GCHQ. Big Data is also political in the contestation of this advanced scientific practice, wherein the generation of data at unprecedented scale promises a precise and objective measure of everyday life. However, the computational dreams of an $N = \text{all}$ verisimilitude – that is, of datasets providing a one-to-one correspondence to a given phenomenon – are haunted by the normative biases embedded in all data. This is not to suggest that Big Data – more specifically processes of datafication¹ – are best or at all understood as socially constructed. Indeed, discursive analysis or unreconstructed social theory cannot fully grasp how data re-articulates the social, cultural, political and economic in a deeply recursive manner. Thus, any political reckoning must equally account for the materiality of data, alongside the logic guiding its processes and the practices that deploy its tools. In short, what are the power relations animating the knowledge generated by data analytics?

1 See Pybus et al. 2015; van Dijck 2014; Cukier/Mayer-Schonberger 2013 for detailed discussion of datafication.

No politics, just data?

As smartphones proliferated last decade, powerful computational media were diffused across time and space into a distributed networks of pervasive data generation. An apolitical vision of Big Data quickly followed. Prominent researchers seized on the potential of this data to fuel new forms of computational social science or what some termed ‘social engineering’ (Lazier et al. 2009). Enthusiasm for developing rigorous mathematical models and applications to understand and predict complex social phenomena reached a high point with Alex Pentland (2014). His MIT research lab developed a highly anodyne vision of “reality mining” (Eagle/Pentland 2006) our data-driven society, wherein the sheer deluge of data points would help attenuate previous limitations imposed by partial or incomplete samples. Reality mining, as proposed by Pentland, looks for social patterns in the quotidian data we generate to infer our relationships, significant locations and actions. This is done to model individual behaviour and organisational rhythms with the goal of predicting future phenomena. Broadly, data scientists tend to follow such practices, when data mining, to derive meaning from social and cultural analytics.

The trope of the enormity of Big Data is now well established, with constantly updating numbers: 95 % of all data was created in the past two years; data doubles in size every two years; the number of smartphones will soon nearly equal the world’s population; within five years there will be an estimated 50 billion smart connected devices; and currently less than 1% of all data is ever analysed or used (Marr 2015). Datafication is one way of describing these technological processes that seek to transform life into data and then to reconstitute that data into actionable sites of value and insight. Kenneth Cukier and Viktor Mayer-Schoenberger (2013) initiated the concept of datafication as a neutral descriptor for data as a resource, harvested from our words, actions, connections, locations, bodies, infrastructures and natural environments in which we live. Datafication is thus presented as an innovative value generator, primarily through business intelligence or market insight about what we think, how we feel, what we respond to, where we go, what we do, who we interact with, what we listen to, what we read, what we like, who we like, and so on. Such pervasive reach drives neutral and anodyne visions of datafication: faith that with enough data comes truth. So “if we collect all the data – ‘n = all,’ to use the terminology of statistics – the problem [of samples or of data modelling] disappears” (Cukier/Mayer-Schoenberger 2013: p. 30). Big Data is thereby driven by a resolution of verisimilitude: not just faith but an actual resolve that if we just gather enough data, its finely granulated resolution will reveal in high definition all the world’s hidden truths.

Some go as far as to suggest that the Big Data age means we no longer need models for understanding. Chris Anderson was an early advocate of this new Big Data vision, and at the core of his ‘end of theory’ thesis was a simple idea: “Petabytes allow us to say: ‘Correlation is enough’” (2008). This new-found power

of correlation is stoked by an equal belief that if individual human behaviour can be mined at an adequate depth, then there is little need for a more structural understandings of businesses, organisations, markets and indeed, virtually every other social, cultural, political and natural phenomena. Pentland even suggests that Big Data renders scholars such as Adam Smith or Karl Marx to the data-poor dustbin of history: “[markets and classes] are aggregates. They’re averages. While it may be useful to reason about the averages, social phenomena are really made up of millions of small transactions between individuals” (Pentland 2012).

Data Power and Knowledge

This ‘no politics, just data’ paradigm has garnered sustained and widespread critique. A cursory overview might include danah boyd and Kate Crawford’s (2011) early questioning of the underlying drive of Big Data; namely the pursuit of maximising value from as much data as possible by both industry and the State. So immediately, a politics of Big Data faces the question of value for whom? For advertisers? For policing? For state security? For new pricing models or service delivery? And how does this question of value relate to communities, especially outside of market relations? Other critiques, such as the one put forward by Lisa Gitelman (2013) have attacked the very premise of ‘raw’ data, outlining the myriad ways in which all data are ‘cooked’ or constructed, thereby demystifying claims of clean, unfiltered and neutral data. Similarly, Rasmus Helles and Klaus Bruhn Jensen (2013) remind us that data making is a complex process that involves multiple agents. Farida Vis (2013) critically reflects on how both researchers and the tools they use fundamentally impact on both data access and quality. Meanwhile, for questions of interpretation, value and meaning scale up with large data sets, which poses complex methodological challenges (Busch 2014). These get articulated both in terms of the data itself – from its provenance to its political economy – to the interpretive techniques deployed to generate meaning or actionability. José van Dijck (2014) contends that this rampant growth of large social datasets is fueled by a widespread public willingness to share personal information on corporate platforms; she calls this ‘dataism’, a secular belief in precisely those anodyne qualities of data. Dataism is the public counterpart to the scientific and professional paradigm previously outlined, bringing us to a danger inherent in an unreflective pursuit of ubiquitous data capture: dataveillance.

Many have used a Foucauldian frame to demonstrate the role of computers aiding surveillance (Lyon 1994). Greg Elmer (2003) highlighted the panoptic reach of the digital via Michel Foucault’s ‘diagrammatic approach’. This is resonant with our special issue, as it emphasises how digital panopticism engenders not just repressive but productive power relations. More recently, Tania Bucher (2012) notes how such panopticism encourages Facebook participation. Now under Big Data, the all-seeing gaze of social networks enacts a new threat: that one *might not*

be seen and thereby rendered invisible in the data flows. This data imperative to be seen is as keenly pursued by the NSA or GCHQ as it is by industry and marketing practices: that is, the use of pervasive personal data systems to systematically monitor people and groups in order to regulate, govern, monitor and influence their behaviour (Degli Esposti 2014). Likewise, the Foucauldian dispositif has been used to examine the 'productive' counterpart of pervasive digital networked relations, as well as the materiality of power (Röhle 2005; Coté and Pybus 2007; Ruppert, Law and Savage 2013).

Alongside these fundamental critiques, the algorithm has become an important cipher for decrypting the various political dimensions of Big Data across society. Beer (2009), for example, theorises the algorithm as a form of data power, expressed in the now constitutive role of Big Data in popular culture and social life. A brief list on how algorithms enact new procedures of power and knowledge includes the biases of dataveillance as deployed in war scenarios and security apparatuses (Amoore 2009), in biometrics (Cheney-Lippold 2011), finance (Lenglet 2011), gaming (Galloway 2006), and how it can construct silos or 'filter bubbles' in political discourse, segmenting social life and the public sphere (Pariser 2011). Finally, Frank Pasquale (2015) notes how pervasive data gathering takes on a problematic political economic form when algorithmic black boxes are deployed in a proprietary and mostly unregulated market. Data, then, is always curated and defined, each time embedding values and biases into the algorithms – the step-by-step instructions – through which it will be processed. The insights, or actionable information will always be a product of those material processes. Or, as bluntly stated by Cathy O'Neill (2016), "We're pretending we are not embedding our values in algorithms and calling them neutral. That's bullshit."

A closely related dimension of data politics is political economic domination and control. Concentration of ownership and unprecedented market value are remarkable expressions of data power. Google is the world's most valuable company whose market value exceeds half a trillion dollars (in a near dead heat with Apple) while Facebook is the world's most popular digital platform, with 1.13 Billion daily active users. Such market power grows unabated in the hands of a few corporations across platforms and data infrastructures (McChesney 2013). Similarly, Vincent Mosco (2014) draws our attention to political economy of cloud computing by examining the ownership structures that governs the productions, processing, storage and distribution of the data that are stored in these vast and expansive closed systems. Such concentration of ownership of data opens questions about alternative ways of managing it, ranging from the creation of data commons accessible to researchers and communities (Pybus et al. 2016), to platform co-operatives (Scholz, 2016). At issue here is the general redistribution of value from data collection and analysis.

Concentrated market power, structural inequalities between data generation and control, alongside the rise of pervasive dataveillance and opaque algorithms that are executing predictive analytics with discriminatory results takes us

some distance from an ameliorating realm of neutral Big Data. This special issue proposes no singular paradigm or conceptual frame for addressing the myriad elements and effects of the contemporary condition of the data human. It does, however, suggest that a political critique entails questions of data access, technological understanding and capacities, and the ability to critically examine the algorithms of data analytics in order to forensically unpack the value-laden information and knowledge produced. We suggest that one way of making the political dimensions of Big Data visible is from a broad Foucauldian perspective, as briefly indicated above. First, this can address the materiality of data by targeting the technical and architectural dimensions of power. These insights of the post-epistemic Foucault not only exceed the symbolic or discursive but also look to the inherently productive dimensions of power. Also, this situates Big Data – or even more specifically datafication – as a matrix for power-knowledge relations. This is crucial to the ‘actionability’ of Big Data which is expressed in a complex network of relations: combinatory processes that allow us to “see and speak”.

There is a critical promise in broadly framing Big Data within power-knowledge relations. We have seen how datafication has made data a resource, and subjected everyday life to pressures of productivity, including instruments of control and biased or discriminatory categorisation. A general diagnostic approach helps unpack the ways in which data-power/knowledge both productively enables us to speak and be seen but also repressively categorises, correlates and classifies us. A Foucauldian diagnostic of data knowledge frames it as “a form of knowledge that defines and determines differences ... [which] can permit a new objective field to appear” (Foucault 1996: 95). The notion of the objective field echoes the ‘no politics just data’ frame. Foucault, however, uses it to indicate how specific knowledge becomes visible in a given historical moment. Once, for Foucault, this was the sexual deviant, now, for Big Data, it is the bad credit subject derived from social network analysis. Both are instances of what Foucault called “articulated historical content” (96) facilitating knowledge production, ‘objective’ fields which categorise, ordering, and classify, expressing deeply asymmetrical relations of data access and agency. This can be taken up as a kind of data hermeneutic, one that entails an empirical – or material – examination of the conditions enabling if not truth claims, then actionability. Finally, there is one last Foucauldian inflection that helps emphasise the political stakes at play in Big Data. One model for the productive dimension of power was that of biopower, albeit expressed primarily in terms of control and domination (Foucault 1994). There is, however, the counterpoint of the biopolitical, as outlined by Lazzarato (2002) which emphasises the creativity and capacity for resistance inherent in power. We urge a similar understanding of Big Data: as a contested realm of *data power* and the *data political*.

Themes and Contributions on Politics and Big Data

The following contributions unfold across related themes exploring the data-politics nexus. First, Carolin Gerlitz and Bernhard Rieder unpack the power-knowledge relations of Big Data as they play out across social media platforms. Second, Big Data is explored not only as a means of political domination but as a critical and creative resource that can be utilised in a different direction by civil society groups and ordinary citizens. The contributions by Stefania Milan and Lonneke van der Velden and Mark Coté and Jennifer Pybus explore a range of approaches both for struggles over and for the democratization of Big Data. Third, are questions regarding the consequences inherent in the particular gaze afforded by Big Data and its classificatory techniques. Paolo Gerbaudo and Dhiraj Murthy, Alexander Gross and Marisa McGarry respectively explore concrete, political, social and organizational practices in relation to how to interpret and understand the content that gets uploaded on social media to empower the citizens that use such platforms. These articles show how Big Data is not just changing politics but also the way we can conduct research about political phenomena.

In the first paper, 'Big Data and the Paradox of Diversity', Bernhard Rieder takes us through a provocative argument that focuses less on the errors that arise from Big Data's empirical truth claims and more on the impact of data mining practices within contemporary capitalist societies. By so doing, he develops a critique built around the myriad ways in which data analysis is increasingly geared towards producing "actionable forms of knowledge" instead of "disinterested description." Rieder brings our attention to the ways in which empirical methods, such as what he calls 'accounting realism' are used for profitable decision making. For example, in looking at how spam filters operate, he describes how both decision models and machine learning algorithms help to ensure that these email filters are rendered more effective, based on their capacity to adapt and become personalised. What is of interest here lies in "the profound consequences for how decisions come to be made and how judgement is operationalized." Thus, it does not matter if the spam filter is always correct, rather that it works most of the time and can thereby be considered as a reliable tool to make a judgment. Similarly, as his argument progresses, this value based accounting realism slides into other areas of society wherein algorithms are being used.

The political objective of Rieder's intervention is precisely to add to our understanding of the "profound ideological role at the intersection of sociality, research, and commerce" (van Dijck 2014: 201). By considering how large quantities of data are amassed and analysed, he unpacks how these algorithmic practices have extended our unquestioned acceptance of productivity, performance, and merit or in his words 'economic morality' (Allen 2012). This more holistic perspective of Big Data leads him to consider the possibility of what it means if algorithms actually 'work.' Rieder therefore urges us to think through the limitations and biases of Big Data but equally to consider how this growing capacity to know

society via performative forms of judgment may become a “mode of governing through measuring.”

In the second paper, “What Counts? Reflections on the Multivalence of Social Media Data,” Carolin Gerlitz critically examines how value is inscribed in the social data that is generated on platforms. Drawing on both platform and valuation studies, she argues that the social media are multivalent sites of production, and thus a platform must cater to a range of different actors including users, advertisers, media outlets, or other corporate partners. The paper explores the specific socio-technical conditions wherein processes of valuation are always already inscribed into the programmability and affordances, alongside the constraints that govern the sociality of a platform’s stakeholders. Within this framework, where the production of value becomes plural, Gerlitz argues that platform (pre)formed data is governed by different ‘grammars of action’. In short, “valuable alongside multiple, conflicting value regimes.” The sites of capture, which are then built into the networked circuits of sociality, should not be understood as singular sites of economic valorization. Instead, the different processes of valuation will ensure that the social data that gets generated will contribute to the enactment of multiple, albeit conflicting, value registers within the platform. And so, drawing on Badiou she asks: “What counts in the sense of what is valued? – is that which is counted. Conversely, everything that can be numbered must be valued.”

Drawing on Instagram as a case study, Gerlitz argues for a critical account on platforms. Within the brief methodological experiment that she outlines, based on a workshop that was conducted during the Digital Methods Winter School at the University of Amsterdam, she demonstrates the competing tensions that exist between different grammars of action (both front and back end). The frictions that arises can be seen in relation to a number of decisions made by Instagram in late 2015. The changes, however, that were brought about by the social media platform were aimed at recalibrating user engagement and worked to maximize their exposure to paid content or advertising. Gerlitz concludes by asking us to consider the plurality of ways in which the conditions of valuation are inscribed to devise alternative accounts of ‘what counts’.

In the third paper, Stefania Milan and Lonneke van der Velden discuss different forms of activism which make data a new terrain of contention. The authors highlight how different campaigns and social movements approach the question of Big Data. For some, Big Data is mainly understood in terms of a threat to individual rights, and to privacy. For others, Big Data has more positive possibilities, allowing new opportunities for social change. A number of examples of data activism are covered, from the social media forensics of Elliot Higgins, to Open Source Intelligence, and the Occupy Data group a spinoff of Occupy Wall Street. Data activism is defined as a “series of sociotechnical practices that, emerging at the fringes of the contemporary activism ecology, critically interrogate datafication and its socio-political consequences”. This type of activism is in continuity with previous forms of activism that has also involved demonstrating the polit-

ical potential of information, among them stactivism: a port-manteau of statistics and activism. However, Milan and van der Velden introduce a new element, reflecting the techniques and forms of knowledge associated with data production and distribution. The article goes on to examine the productive and creative character of data activism, and relates this to the new ways in which using data are developed. Moreover, it provides a mapping of different forms of data activism, along the axis reactive-proactive and individual-collective. In so doing, the authors demonstrate how data activism has by now become a diversified area of political activism and campaigning – one that is likely to see great developments in years to come.

In the fourth paper, Mark Coté and Jennifer Pybus extend their research on new forms of critical and creative data agency (Pybus et al. 2016) through a focus on interdisciplinary workshop which bring together humanities researchers and social scientists with coders and hackers. They suggest the hacker ethos and practice of critical engagement with technology has pedagogical value to strategically counter the tendency toward control and value extraction, which currently dominates processes of datafication. Coté and Pybus report upon their workshop ‘Hacking the Mobile Ecosystem’ which opened up mobile applications to their constituent elements, in this case exposing and exploring the coding of permissions which calibrate the harvesting and flows of our personal data. The authors evince political efficacy in theorising such interdisciplinary practices as a ‘techno-cultural’ method via the work of the French philosopher of technology Gilbert Simondon. This is practice-led theory, where the workshop acts as a zone of interdisciplinary translation, not just for otherwise hidden technical elements facilitating data flows, but as a means to articulate socio-cultural and political-economic dimensions.

The authors argue for the workshop to be understood as more than a site for the development of technical skills in the use of digital tools for either computational methods in humanities or empirical research. Instead, Coté and Pybus assert a basic political orientation for the techno-cultural method: to critically unpack the data materiality of the human condition under datafication. The workshop is thus seen as a practical articulation of Simondon’s notion of ‘difficult humanism’ which integrates human and technical reality, that is technology into culture. The authors put forward Simondon’s technicity as the conceptual key of the techno-cultural method. Technicity coheres the elements of any technical object yet it is also an excess which always exceeds the its apparent instrumentality. Coté and Pybus thus present a two-fold political elaboration through the opening up of technical objects. First, it makes visible constituted power and control, engaging the normative and regulatory dimensions of technical objects which inscribe us more deeply into circuits of production and consumption. But crucially, techno-cultural workshops also seek the super abundance of technicity in the technical object, practically engaging those elements as the potential energy to differently organise collective life beyond normative systems.

In the fifth paper, Dhiraj Murthy, Alexander Gross and Marisa McGarry focus on event-based datafication, specifically how it impacts the changing ways in which

natural disasters are experienced, as well as how they can be studied. Where once journalists might have been considered as the gatekeepers of content, the volume of social media commentary and images have had a profound impact on the ways in which such collective moments are both represented and experienced by the public. By focusing on Hurricane Sandy, which occurred on October 29th, 2012, the authors draw on Big Data methodologies to highlight how critical empirical-based work can be used to better understand those latent narratives which may exist within visual social media data. They therefore developed a case study of 11,964 geolocated images that were taken by users on Instagram and then embedded on Twitter.

Murthy, Gross and McGarry were drawn to this natural disaster, given it was the first of its kind wherein not only did Instagram play a significant role in shaping public discourse and understanding of Hurricane Sandy but was also the first and last major US event in which Twitter and Instagram came together. In short, creating unique circumstances, wherein images were networked across two platforms by citizens who were collectively experiencing the hurricane as it unfolded. As a result, the authors' findings demonstrate that the number of selfies posted or pictures with food and drink, pets among other humorous images highlighted the possibility of the change in the politics of representation as it relates to natural disasters. Here social media users are seen as informed subjects, signalling the informal and ironic way in which citizens rather than authorities conceive of and communicate disaster situations. Thus, the article shows that it is necessary to explore further the actual content of social media conversations, and that from this analysis it is possible to understand the specific angle and attitude that is dominant in a conversation, as well as the politics that are at play within it.

The article by Paolo Gerbaudo proposes the notion of data hermeneutics as an alternative and qualitative supplement to data analytics for the study of social media data. Gerbaudo argues that data analytics has become something akin to an orthodoxy in the field of digital politics and social media research, leading to a quantitative bias that is accompanied by a neglect for the actual content and meaning of online conversations. To move beyond this situation, Gerbaudo proposes that it is necessary to recuperate some key insights from the hermeneutic tradition as it has developed in a number of field from phenomenology, to literary criticism, qualitative sociology and anthropology. In particular, it is urgent to reassert the hermeneutic preoccupation with interpretation and the understanding that phenomena must be excavated at greater depth by looking at the deep structure of meaning and connected discourses. However, this task entails a digital update of hermeneutic procedures, traditionally concerned with textual study (poems, novels, films *ec.*), but now inclusive of the study of social media data. Referring to Paul Ricoeur, Gerbaudo argues that data hermeneutics needs to "approach data as the 'inscription' or recorded trace of a peculiar form of social text: social media conversations". This is a radically different view of social media data, from the one of data analytics that sees social media posts as transparent and discrete data-points. Furthermore, data hermeneutics needs to revise the close

reading approach of literary criticism, making the object of close reading specific social media posts, and the larger conversations in which they are immersed. The article thus sketches out a research strategy and ethos which asserts the value of data hermeneutics as a necessary counterpart to data analytics.

(Finally, the publishing of this special issue was supervised by Ramón Reichert.)

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